

## **REMARKS**

### **Remarks**

Reconsideration of the pending claims in view of the above amendments and following remarks is respectfully requested.

Claim 1 is amended. Claim 15 is cancelled. New Claims 18 and 19 are inserted.

Claim 1 is amended by replacing “a material” with “an inkjet medium comprising a support and an ink receiving layer, said method” and by inserting the phrase “to form the ink receiving layer” at the end of the claim. Support for this amendment can be found at original claim 15, and throughout the specification, such as in Example 2.

New Claim 18 is directed toward specific blowing agents, support for which is at page 6, lines 7-9 and new Claim 19 is directed toward heating the solution to a temperature of from 70-90°C, support for which can be found in the Examples.

### **Rejection under 35 USC § 102(b) over EP 1060901**

Claims 1, 4 and 15 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by EP 1060901. According to the Office Action, ‘901 teaches forming a porous base layer for an inkjet recording element by applying a hydrophilic polymer such as gelatin or PVA plus blowing agent to a support (page 4, lines 4-37). For at least the following reasons, Applicant traverses the rejection.

EP 1060901 relates to an image recording element for ink jet ink and comprises a support, an absorbent base layer and a top layer that is ink receptive. It discloses on page 4, lines 22-23 that a porous structure may be introduced into the base layer by the addition of ceramic or hard polymeric particulates, by foaming or blowing during coating or by inducing phase separations in the layer through the introduction of non-solvent. It is also disclosed at page 4, line 12 that the base layer is primarily intended as a sponge layer for the absorption of ink, i.e. not an ink-receiving layer, which is the purpose of the top layer.

Amended claim 1, from which claim 4 depends, concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic polymer and a blowing agent; and either prior to or after the step of

coating said support, causing said blowing agent to generate gas bubbles within the solution, causing foaming of said hydrophilic polymer to form the ink receiving layer.

'901 does not disclose the use of a hydrophilic polymer and a blowing agent to cause foaming of the hydrophilic polymer to form the ink receiving layer, as required by present claim 1. '901 only discloses the possible use of a blowing agent and the coating material to generate a porous structure in the base layer, for use as a sponge layer or sump for absorption of ink solvent.

Accordingly, it is submitted that '901 does not disclose nor suggest the subject matter of claim 1 or claim 4 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 102(b) over Aono (US 5128313)**

Claims 1, 4 and 15 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by US 5128313 (Aono). According to the Office Action, '313 teaches making a porous layer on an image receiving material by applying a water soluble polymer and blowing agent. The foaming is said to occur either before application or during coating and drying (column 9, lines 3-554). The office action states that gelatin is disclosed as a water soluble binder in '313 (column 9, lines 3-10). For at least the following reasons, Applicant traverses the rejection.

US 5128313 is concerned with a thermal transfer image receiving material comprising a support and an image receiving layer. The material may comprise an interlayer between the support and the image receiving layer. The image receiving layer may be a cushioning layer, a porous layer or a dye-diffusion-preventing layer (column 8, lines 62-68). A porous layer is said, at column 9, lines 11-14, to be a layer which prevents heat applied during thermal transfer from diffusing into the support and when water-soluble polymers are used as the binder in such a layer, the porous layer can be formed (amongst other methods) by a method wherein a blowing agent is added to a solution of a water-soluble polymer and expanded before or during coating and drying (column 9, lines 15-25).

Amended claim 1, from which claim 4 depends, concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic polymer and a blowing agent; and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the

solution, causing foaming of said hydrophilic polymer to form the ink receiving layer. The porous layer, which may be prepared using blowing agents, described in '313 is an inter-layer (between the support and the ink receiving layer) for preventing heat transfer from the image-receiving layer to the support. It is not an ink-receiving layer, whereas the present claims require that the foamed hydrophilic polymer coating is the ink-receiving layer.

Accordingly, it is submitted that '313 does not disclose nor suggest the subject matter of claim 1 or claim 4 dependent therefrom. For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 102(b) over DeBoer (US 6299302)**

Claims 1, 4, 6-7 and 15-16 were rejected under 35 U.S.C. § 102(b) as allegedly anticipated by DeBoer (US 6299302). According to the Office Action, '302 teaches making an ink-receiving layer on an inkjet substrate that comprises water soluble binder such as gelatin or PVA, a fluorosurfactant (at 0.01-1 wt%) and a blowing agent (column 3, line 5 to column 5, line 8). For at least the following reasons, Applicant traverses the rejection.

'302 discloses an ink jet receiver which provides variable dot sizes, comprising a substrate, an ink-receiving layer disposed over the substrate and a removable ink delivery layer, which in response to a droplet of ink, absorbs a portion of the ink and delivers another portion of the ink to the ink receiving layer so that a dot is formed in the ink-receiving layer (see column 2, lines 1-8). The ink receiving layer is composed of a number of essential components, including clay, one or more water-soluble binders, one or more hardening agents and optionally colloidal silicas (see column 3, lines 21-23). According to Table 1 of '302, the water-soluble polymer component is preferably from 5-12% by weight. Amongst a list of additional materials that may be useful in the ink receiving layers is mentioned blowing agents, although no blowing agents are utilised in the specific embodiments of the invention described therein and no teaching as to the use of the blowing agents is mentioned.

Amended claim 1, from which claims 4, 6-7 and 15-16 depend, concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic polymer and a blowing agent; and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles

within the solution, causing foaming of said hydrophilic polymer to form the ink receiving layer.

It would appear that the ink jet receiver of '302 is likely to be porous by virtue of the presence of clay (in an amount of up to 80% by weight according to Table 1) and that the ink jet receiver of '302 comprises a hydrophilic polymer. There is no disclosure in '302 of forming an ink-receiving layer of an ink-jet medium by activation of blowing agents in a solution of a hydrophilic polymer, as required by the present invention. Furthermore, whilst blowing agents are mentioned in '302, they are only mentioned in a speculative list of many possible components that may be included in an ink receiving layer, without any indication as to what purpose such components would serve or what effect they would provide nor how to put such a purpose into effect. It is submitted that there is no disclosure in '302 of a method as defined in the present claims and, therefore, that claim 1 is novel over '302. Claims 4, 6-7 and 16 are also novel by virtue of their dependence upon claim 1.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 103(a) over EP 1060901**

Claims 5-12 and 16-17 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over EP 1060901. According to the Office Action, '901 fails to teach the weight percent of blowing agent, the presence of surfactants, plural simultaneous coatings or foaming by heat. The Office Action states that it would have been obvious to one of ordinary skill in the art to have optimised the weight percent of the composition through no more than routine experimentation, that applying a plurality of coating solutions is a mere variation on typical coating practices, that additives that are well known in the art may be added (including surfactants) and that foaming by heating blowing agents is well known in the art. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claims 5-12 and 16-17 are not obvious over EP 1060901 at least by virtue of their dependence on amended claim 1, which, it is submitted, is patentable over the cited documents.

As set out above, amended claim 1 concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic

polymer and a blowing agent; and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the solution, causing *foaming of said hydrophilic polymer to form the ink receiving layer*.

As discussed above, EP 1060901 states that porosity can be introduced into the base layer of the ink jet recording element described therein by foaming or blowing during coating, or by other methods, such as adding ceramic particles. The primary purpose of the base layer, however, is as a sponge layer for absorbing the ink fluid and not for receiving the dye image, which is the purpose of the top layer. Furthermore, it is stated at page 4, lines 27-30 that it is not necessary for the base layer to be porous and that, in fact, for the purpose of producing photographic prints, it is preferably non-porous. The top layer, which is the ink-receptive layer, comprises swellable polymers and a crosslinking agent and does not have any porosity introduced. There is no indication or suggestion in EP 1060901 that would lead the skilled person in the art in possession of that document to prepare a foamed ink receptive layer. Accordingly, it is submitted that claim 1, and claims 5-12, 16 and 17 dependent therefrom, are patentable over EP 1060901.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 103(a) over Aono (US 5128313)**

Claims 5-12 and 16-17 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over US 5128313 (Aono). According to the Office Action, '313 fails to teach the weight percent of blowing agent, the presence of surfactants, plural simultaneous coatings or foaming by heat. The Office Action states that it would have been obvious to one of ordinary skill in the art to have optimised the weight percent of the composition through no more than routine experimentation, that applying a plurality of coating solutions is a mere variation on typical coating practices, that additives that are well known in the art may be added (including surfactants) and that foaming by heating blowing agents is well known in the art. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claims 5-12 and 16-17 are not obvious over US 5128313 at least by virtue of their dependence on amended claim 1, which, it is submitted, is patentable over the cited documents.

As set out above, amended claim 1 concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic polymer and a blowing agent; and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the solution, causing *foaming of said hydrophilic polymer to form the ink receiving layer*.

As discussed above, US 5128313 mentions that a porous layer can be formed, among other methods, by adding a blowing agent to a solution of water-soluble polymer and expanding before or during coating and drying (column 9, lines 15-25). As stated at column 9, lines 11-14, the function of the interlayer when it is a porous layer is to prevent heat applied during thermal transfer from diffusing from the image receiving layer into the support. There is nothing in US 5128313 that would indicate or suggest the skilled person in the art should utilise one possible method of generating a porous interlayer (for preventing heat transfer to the support) of a thermal transfer image receiving material in forming the ink-receiving layer of an ink-jet receiver. In particular, the ink-jet receiver is unlikely to encounter the problem of heat transfer to the support because it does not require heat transfer of dyes to generate the image. It is submitted therefore that claim 1, and claims 5-12, 16 and 17 dependent therefrom, are patentable over US 5128313.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 103(a) over DeBoer (US 6299302)**

Claims 5, 8-12 and 17 were rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over DeBoer (US 6299302). According to the Office Action, '302 does not teach applying a plurality of coating solutions, but this is a mere variation on typical coating practices. The Office Action states that the weight percent of surfactant at 0.01-1% overlaps with the Applicant's claimed range of 0.01-2%. Further, the Office Action states that '302 fails to teach the weight percent of the blowing agent, but that it would have been obvious to one of ordinary skill in the art to have optimised the weight percent through no more than routine experimentation and that foaming by heating blowing agents is well known in the art. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claims 5, 8-12 and 17 are not obvious over US 3299302 at least by virtue of their dependence on amended claim 1, which, it is submitted, is patentable over the cited documents.

As set out above, amended claim 1 concerns a method of making an inkjet medium-comprising a support and an ink receiving layer, said method comprising the steps of coating a support with a solution comprising a hydrophilic polymer and a blowing agent; and either prior to or after the step of coating said support, causing said blowing agent to generate gas bubbles within the solution, causing *foaming of said hydrophilic polymer to form the ink receiving layer*.

As discussed above, whilst '302 mentions blowing agents as one of a large and varied list of additional materials said to be useful in the ink-receiving layer. However, there is no use of blowing agents in the specific embodiments and no indication of how and when blowing agents should be used according to the described invention or what benefit they would offer and the outcome of their use in the described ink-jet receiver is not predictable. It would appear also, that the required degree of porosity in the receiving layer would be provided by the clay that is present in that layer as an essential component of the ink receiving layer of '313 (see column 3, lines 20-22). Accordingly, it is submitted that the skilled person in the art would not be motivated to wish to include a blowing agent in the ink-receiving layer of '313 and would not be led by the disclosure of '313 to form a porous ink-receiving layer on a support by coating a solution of a hydrophilic polymer onto a support and foaming the coated solution to form an ink-receiving layer as in the present invention. Accordingly, it is submitted that claim 1, and claims 5, 8-12 and 17 dependent therefrom, are patentable over '313.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

**Rejection under 35 USC § 103(a) over EP 1060901, Aono (US 5128313) or DeBoer (US 6299302) in view of KR 2000-0063640**

Claim 13 was rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over EP 1060901, Aono (US 5128313) or DeBoer (US 6299302), all taken in view of KR 2000-0063640. According to the Office Action, '901, '313 and '302 fail to teach adding an acid to react with the blowing agent and '640 teaches adding an acid that decomposes a foaming agent as a process to foam a PVA solution.

According to the Office Action, it would therefore be obvious to one of ordinary skill in the art to have used the acid foaming process of '640 because it teaches that this is a conventional means of foaming a PVA solution. For at least the following reasons, Applicant traverses the rejection.

It is submitted that claim 13 is not obvious over EP 1060901, US 5128313 or US 3299302, in view of KR 2000-006340 at least by virtue of its dependence on amended claim 1, which, it is submitted, is patentable over the cited documents. The reasons are the same as those set out for each of these documents above.

For at least the above reasons, reconsideration and withdrawal of the rejection are in order.

In view of the foregoing remarks, reconsideration of the above-identified patent application is respectfully requested. Prompt and favourable action by the Examiner is earnestly solicited. Should the Examiner require anything further, the Examiner is invited to contact Applicants' representative.

Respectfully submitted



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